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EXAMINER	
YODER III, CHRISS S	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/690,494	Applicant(s) GLENN, WILLIAM E.	
	Examiner Chriss S. Yoder, III	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 16-75* is/are rejected.

7)☒ Claim(s) *14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3, 9-10, 12, 17, 19-21, 59-61, 63, 64, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (US Patent # 6,219,092) in view of Clark (US Patent # 4,720,637).

2. In regard to claim 1, note Saito discloses the use of a method for producing electronic signals representative of images on a source film (column 1, lines 5-10), comprising the steps of illuminating said film with a light source to obtain an illuminated frame (column 3, lines 35-36; and figure 1: 24), providing an electronic image sensor (column 3, lines 32-35; and figure 1: 25), providing a lens array for projecting said illuminated frame on said electronic image sensor (column 4, lines 47-50; figure 2: 25A), and reading out image representative electronic signals from said electronic image sensor (column 3, lines 33-36). Therefore, it can be seen that the Saito device lacks the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image. Clark discloses the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image (column 3, lines 30-35; and figure 1: 20). Clark teaches that the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image is preferred in order to eliminate false signal

components or aliases which result in defects, distortions or other ambiguities in the reconstructed images (column 4, lines 30-35). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Saito device to include an aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Clark.

3. In regard to claim 2, note Clark discloses focusing the image of the light source at the plane of said aperture, said image of the light source being less than one-fifth the size of said aperture (column 3, lines 30-35, column 4, line 65-column 5, line 10; the aperture is adjustable based on the amount of high spatial noise that is to be let through, which includes an aperture with a value being 5 times the size of the light source).

4. In regard to claim 3, note Saito discloses that said focusing step comprises focusing with a field lens (figure 2: 25A).

5. In regard to claim 9, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32; and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

6. In regard to claim 10, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32;

and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

7. In regard to claim 12, note Clark discloses the step of adjusting the size of said aperture (column 4, line 65 – column 5, line 10).

8. In regard to claim 17, note Saito discloses the step of providing a lens array that comprises providing a copy lens array (figure 2: 25A). And Clark discloses that said step of providing an aperture comprises providing said aperture within said copy lens array (figure 1:20).

9. In regard to claim 19, note Saito discloses the step of storing said image-representative signals (column 7, lines 45-48).

10. In regard to claim 20, note Saito discloses the step of storing said image-representative signals as digital signals (column 7, lines 60-65).

11. In regard to claim 21, note the primary reference of Saito in view of Clark discloses the method of producing electronic signals representative of images on a source film as claimed in 2 above. Therefore, it can be seen that the primary reference fails to disclose the use of a light source that comprises providing, sequentially, different colored light sources. Official notice is taken that the concepts and advantages of using a color wheel to sequentially change the color that is projected through an imaging device is notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary reference to include the

use of a color wheel to provide, sequentially, different light sources in order to capture each color of the image independently.

12. In regard to claims 59-61 and 63-64, these are apparatus claims, corresponding to the method of claim 1-3, 9, and 17 respectively. Therefore, claims 59-61, 63, 64 have been analyzed and rejected as previously discussed with respect claims 1-3, 9, and 17.

13. In regard to claim 74, note Saito discloses the use of a method for producing electronic signals representative of images on a source film (column 1, lines 5-10), comprising the steps of illuminating said film with a light source to obtain an illuminated frame (column 3, lines 35-36; and figure 1: 24), providing an electronic image sensor (column 3, lines 32-35; and figure 1: 25), providing a lens array for projecting said illuminated frame on said electronic image sensor (column 4, lines 47-50; figure 2: 25A), and reading out image representative electronic signals from said electronic image sensor (column 3, lines 33-36). Therefore, it can be seen that the Saito device lacks the use of providing an optical filter having a high spatial frequency cutoff in the image. Clark discloses the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image (column 3, lines 30-35; and figure 1: 20). Clark teaches that the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image is preferred in order to eliminate false signal components or aliases which result in defects, distortions or other ambiguities in the reconstructed images (column 4, lines 30-35). Therefore, it would have been obvious to one of ordinary skill

in the art to modify the Saito device to include an aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Clark.

14. Claims 4-8, 11, 13, 18, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (US Patent # 6,219,092) in view of Clark (US Patent # 4,720,637) in further view of Kimura et al. (US Patent # 5,833,341).

15. In regard to claim 4, note the primary reference of Saito in view of Clark discloses the method of producing electronic signals representative of images on a source film as claimed in 2 above. Therefore, it can be seen that the primary reference fails to disclose that the step of providing an aperture comprises providing an aperture having a shape matched to the pixel pattern of said image sensor. Kimura discloses the use of an aperture that has the same shape as the pixel pattern an imaging device (column 14, lines 32-34). Kimura teaches that the use of an aperture shaped the same as the pixel pattern of an imaging device is preferred in order to direct the light on the portion that accepts the light only (column 14, lines 43-45). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of an aperture shaped the same as the pixel pattern of an imaging device as suggested by Kimura.

16. In regard to claims 5-8, note the primary reference of Saito in view of Clark discloses the method of producing electronic signals representative of images on a source film as claimed in 2 above. Therefore, it can be seen that the primary reference fails to disclose that the shape of the aperture is shaped rectangular, square, hexagonal, or diamond. Kimura discloses that the shape of the aperture is the same as

the imaging device (column 14, lines 32-34; and based on design choice, it is implied that the aperture may be formed in any shape such as rectangular, square, hexagonal, or diamond in order to match the imaging device). Kimura teaches that the use of an aperture shaped the same as the pixel pattern of an imaging device is preferred in order to direct the light on the portion that accepts the light only (column 14, lines 43-45). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of an aperture shaped in any pattern in order to match the imaging device.

17. In regard to claim 11, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32; and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

18. In regard to claim 13, note Clark discloses the step of adjusting the size of said aperture (column 4, line 65 – column 5, line 10).

19. In regard to claim 18, note Saito discloses the step of providing a lens array that comprises providing a copy lens array (figure 2: 25A). And Clark discloses that said step of providing an aperture comprises providing said aperture within said copy lens array (figure 1:20).

20. In regard to claim 62, this is an apparatus claim, corresponding to the method of claim 4. Therefore, claim 62 has been analyzed and rejected as previously discussed with respect claim 4.

21. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (US Patent # 6,219,092) in view of Clark (US Patent # 4,720,637) in further view of Steinebach (US Patent # 6,366,708).

22. In regard to claim 16, note the primary reference of Saito in view of Clark and Kimura discloses the method of producing electronic signals representative of images on a source film as claimed in 2 above. Therefore, it can be seen that the primary reference fails to disclose that the step of illuminating said film with a light source comprises providing a laser beam and a beam expander. Steinebach discloses the use of a laser beam and beam expander for illuminating film (column 2, lines 20-35). Steinebach teaches that the use of a laser beam and expander for illuminating film is preferred in order to reduce color crosstalk within the image (column 2, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a laser beam and expander as suggested by Steinebach.

23. Claims 22, 24, 27, 35, 37-38, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (US Patent # 6,219,092) in view of Clark (US Patent # 4,720,637) in further view of Park (US Patent # 5,140,428).

24. In regard to claim 22, note the primary reference of Saito in view of Clark discloses the method of producing electronic signals representative of images on a

source film as claimed in 2 above. Therefore, it can be seen that the primary reference fails to disclose the steps of further including recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image. Park discloses the steps of recording, on an object film, images represented by said electronic signals (column 2, lines 1-10), said recording including the steps of providing a further light source (column 1, lines 65-67; and figure 1:12), providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source (column 1, line 65-column 2, line 10; and figure 1: 12 and 15), and produces output light containing the image represented by said electronic signals (column 2, lines 1-10), providing a further lens array for projecting said output light onto said object film (column 2, lines 4-5; and figure 1: 2), and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image (Clark is relied upon for this limitation, by adding the aperture from Clark the lens array can perform high spatial frequency cutoff in the same manner that it performs in the conversion from film to video in claim 2). Park teaches that the steps of recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source,

providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image are preferred in order to capture the electronic video in still photographs. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the steps of recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Park.

25. In regard to claim 24, note the primary reference of Saito in view of Clark discloses the method of producing electronic signals representative of images on a source film as claimed in 10 above. Therefore, it can be seen that the primary reference fails to disclose the steps of further including recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further

light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image. Park discloses the steps of recording, on an object film, images represented by said electronic signals (column 2, lines 1-10), said recording including the steps of providing a further light source (column 1, lines 65-67; and figure 1:12), providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source (column 1, line 65- column 2, line 10; and figure 1: 12 and 15), and produces output light containing the image represented by said electronic signals (column 2, lines 1-10), providing a further lens array for projecting said output light onto said object film (column 2, lines 4-5; and figure 1: 2), and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image (Clark is relied upon for this limitation, by adding the aperture from Clark the lens array can perform high spatial frequency cutoff in the same manner that it performs in the conversion from film to video in claim 2). Park teaches that the steps of recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image

are preferred in order to capture the electronic video in still photographs. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the steps of recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Park.

26. In regard to claim 27, note Clark discloses focusing the image of the light source at the plane of said aperture, said image of the light source being less than one-fifth the size of said aperture (column 3, lines 30-35, column 4, line 65-column 5, line 10; the aperture is adjustable based on the amount of high spatial noise that is to be let through, which includes an aperture with a value being 5 times the size of the light source).

27. In regard to claim 35, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32; and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

28. In regard to claim 37, note Clark discloses the step of adjusting the size of said aperture (column 4, line 65 – column 5, line 10).

29. In regard to claim 38, note Park discloses the step of providing a lens array that comprises providing a copy lens array (figure 1: 2). And Clark discloses that said step of providing an aperture comprises providing said aperture within said copy lens array (figure 1:20).

30. In regard to claim 40, note the primary reference of Saito in view of Clark and Park discloses the method of producing electronic signals representative of images on a source film as claimed in 27 above. Therefore, it can be seen that the primary reference fails to disclose the use of a light source that comprises providing, sequentially, different colored light sources. Official notice is taken that the concepts and advantages of using a color wheel to sequentially change the color that is projected through an imaging device is notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary reference to include the use of a color wheel to provide, sequentially, different light sources in order to capture each color of the image independently.

31. Claim 23, 25-26, 28-30, 36, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (US Patent # 6,219,092) in view of Clark (US Patent # 4,720,637) in further view of Kimura et al. (US Patent # 5,833,341) and in further view of Park (US Patent # 5,140,428).

32. In regard to claim 23, note the primary reference of Saito in view of Clark discloses the method of producing electronic signals representative of images on a

source film as claimed in 4 above. Therefore, it can be seen that the primary reference fails to disclose the steps of further including recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image. Park discloses the steps of recording, on an object film, images represented by said electronic signals (column 2, lines 1-10), said recording including the steps of providing a further light source (column 1, lines 65-67; and figure 1:12), providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source (column 1, line 65-column 2, line 10; and figure 1: 12 and 15), and produces output light containing the image represented by said electronic signals (column 2, lines 1-10), providing a further lens array for projecting said output light onto said object film (column 2, lines 4-5; and figure 1: 2), and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image (Clark is relied upon for this limitation, by adding the aperture from Clark the lens array can perform high spatial frequency cutoff in the same manner that it performs in the conversion from film to video in claim 2). Park teaches that the steps of recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source,

providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image are preferred in order to capture the electronic video in still photographs. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the steps of recording, on an object film, images represented by said electronic signals, said recording including the steps of providing a further light source, providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the further light source, and produces output light containing the image represented by said electronic signals, providing a further lens array for projecting said output light onto said object film, and providing a further aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Park.

33. In regard to claim 25, note Park discloses that the step of providing an electro-optical medium comprises providing an electro-optical panel (column 1, line 65- column 2line 5).

34. In regard to claim 26, note Park discloses that the step of providing an electro-optical panel comprises providing a liquid crystal panel (column 1, line 65- column 2line 5).

35. In regard to claim 28, note Clark discloses that the focusing the image of the light source at the plane of said aperture, said image of the light source being less than one-fifth the size of said aperture (column 3, lines 30-35, column 4, line 65-column 5, line 10; the aperture is adjustable based on the amount of high spatial noise that is to be let through, which includes an aperture with a value being 5 times the size of the light source).

36. In regard to claim 29, note Park discloses that the said step of focusing of the image of the light source comprises focusing with a further field lens (figure 1:13).

37. In regard to claim 30, note Kimura discloses the use of an aperture having a shape matched to the pixel pattern of said electro-optical panel (column 14, lines 32-34).

38. In regard to claim 36, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32; and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

39. In regard to claim 39, note Park discloses the step of providing a lens array that comprises providing a copy lens array (figure 1: 2). And Clark discloses that said step of providing an aperture comprises providing said aperture within said copy lens array (figure 1:20).

40. Claims 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito (US Patent # 6,219,092) in view of Clark (US Patent # 4,720,637) in further view of Park (US Patent # 5,140,428), and further in view of Kimura et al. (US Patent # 5,833,341).

41. In regard to claims 31-34, note the primary reference of Saito in view of Clark and Park discloses the method of producing electronic signals representative of images on a source film as claimed in 27 above. Therefore, it can be seen that the primary reference fails to disclose that the shape of the aperture is shaped rectangular, square, hexagonal, or diamond. Kimura discloses that the shape of the aperture is the same as the imaging device (column 14, lines 32-34; and based on design choice, it is implied that the aperture may be formed in any shape such as rectangular, square, hexagonal, or diamond in order to match the imaging device). Kimura teaches that the use of an aperture shaped the same as the pixel pattern of an imaging device is preferred in order to direct the light on the portion that accepts the light only (column 14, lines 43-45). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of an aperture shaped in any pattern in order to match the imaging device.

42. Claims 41-45, 51-54, 56-58, 65-69, 71, 73, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent # 5,140,428) in view of Clark (US Patent # 4,720,637).

43. In regard to claim 41, note Park discloses a method for recording, on an object film, images represented by electronic signals (column 2, lines 1-10), comprising the

steps of providing a light source (column 1, lines 65-67; and figure 1:12), providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the light source (column 1, line 65- column 2, line 10; and figure 1: 12 and 15), and produces output light containing the image represented by said electronic signals (column 2, lines 1-10), and providing a lens array for projecting said output light onto said object film (column 2, lines 4-5; and figure 1: 2). Therefore, it can be seen that Park fails to disclose the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image. Clark discloses the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image (column 3, lines 30-35; and figure 1: 20). Clark teaches that the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image is preferred in order to eliminate false signal components or aliases which result in defects, distortions or other ambiguities in the reconstructed images (column 4, lines 30-35). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Saito device to include an aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Clark.

44. In regard to claim 42, note Park discloses that the step of providing an electro-optical medium comprises providing an electro-optical panel (column 1, line 65- column 2line 5).

45. In regard to claim 43, note Park discloses that the step of providing an electro-optical panel comprises providing a liquid crystal panel (column 1, line 65- column 2line 5).

46. In regard to claim 44, note Clark discloses that the focusing the image of the light source at the plane of said aperture, said image of the light source being less than one-fifth the size of said aperture (column 3, lines 30-35, column 4, line 65-column 5, line 10; the aperture is adjustable based on the amount of high spatial noise that is to be let through, which includes an aperture with a value being 5 times the size of the light source).

47. In regard to claim 45, note Park discloses that the said step of focusing of the image of the light source comprises focusing with a further field lens (figure 1:13).

48. In regard to claim 51, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32; and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

49. In regard to claim 52, note Clark discloses that said step of providing an aperture comprises providing an aperture having a high frequency cutoff in the range 0.7 to 1.4 times the Nyquist limit for the pixel spacing of said image sensor (column 4, lines 30-32; and column 5, lines 1-10; the Nyquist limit for the sensor is 40 cycles/mm, and the aperture setting of f/5 drops the spatial frequency cutoff to 35 cycles/mm which is between 0.7 and 1.4 times the Nyquist limit for the sensor).

50. In regard to claim 53, note Clark discloses the step of adjusting the size of said aperture (column 4, line 65 – column 5, line 10).

51. In regard to claim 54, note Clark discloses the step of adjusting the size of said aperture (column 4, line 65 – column 5, line 10).

52. In regard to claim 56, note Park discloses the step of providing a lens array that comprises providing a copy lens array (figure 1: 2 and 13-14). And Clark discloses that said step of providing an aperture comprises providing said aperture within said copy lens array (figure 1:20).

53. In regard to claim 57, note Park discloses the step of providing a lens array that comprises providing a copy lens array (figure 1: 2 and 13-14). And Clark discloses that said step of providing an aperture comprises providing said aperture within said copy lens array (figure 1:20).

54. In regard to claim 58, note the primary reference of Park in view of Clark discloses the method of transferring electronic signals representative of images on to an object film as claimed in 44 above. Therefore, it can be seen that the primary reference fails to disclose the use of a light source that comprises providing, sequentially, different colored light sources. Official notice is taken that the concepts and advantages of using a color wheel to sequentially change the color that is projected through an imaging device is notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary reference to include the use of a color wheel to provide, sequentially, different light sources in order to capture each color of the image independently.

55. In regard to claims 65-69, 71, and 73, these are apparatus claims, corresponding to the method of claims 41-45, 51, and 56 respectively. Therefore, claims 65-69, 71,

and 73 have been analyzed and rejected as previously discussed with respect claims 41-45, 51, and 56.

56. In regard to claim 75, note Park discloses a method for recording, on an object film, images represented by electronic signals (column 2, lines 1-10), comprising the steps of providing a light source (column 1, lines 65-67; and figure 1:12), providing an electro-optical medium that receives image-representative electronic signals and also receives input light from the light source (column 1, line 65- column 2, line 10; and figure 1: 12 and 15), and produces output light containing the image represented by said electronic signals (column 2, lines 1-10), and providing a lens array for projecting said output light onto said object film (column 2, lines 4-5; and figure 1: 2). Therefore, it can be seen that Park fails to disclose the use of an optical filter for high spatial frequency cutoff in the image. Clark discloses the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image (column 3, lines 30-35; and figure 1: 20). Clark teaches that the use of an aperture in conjunction with said lens array for high spatial frequency cutoff in the image is preferred in order to eliminate false signal components or aliases which result in defects, distortions or other ambiguities in the reconstructed images (column 4, lines 30-35). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Saito device to include an aperture in conjunction with said lens array for high spatial frequency cutoff in the image as suggested by Clark.

57. Claims 46-50 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent # 5,140,428) in view of Clark (US Patent # 4,720,637) in further view of Kimura et al. (US Patent # 5,833,341).

58. In regard to claim 46-50, note the primary reference of Park in view of Clark discloses the use of a recording device that transfers electronic image signals into object film as claimed in claim 44 above. Therefore, it can be seen that the primary reference fails to disclose the use of an aperture having a shape matched to the pixel pattern of said electro-optical panel. Kimura discloses that the shape of the aperture is the same as the imaging device (column 14, lines 32-34; and based on design choice, it is implied that the aperture may be formed in any shape such as rectangular, square, hexagonal, or diamond in order to match the imaging device). Kimura teaches that the use of an aperture shaped the same as the pixel pattern of an imaging device is preferred in order to direct the light on the portion that accepts the light only (column 14, lines 43-45). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of an aperture shaped in any pattern in order to match the imaging device.

59. In regard to claim 70, this is an apparatus claim, corresponding to the method of claim 46. Therefore, claim 70 has been analyzed and rejected as previously discussed with respect claim 46.

60. Claims 55 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent # 5,140,428) in view of Clark (US Patent # 4,720,637) in further view of Steinebach (US Patent # 6,366,708).

61. In regard to claim 55, note the primary reference of Park in view of Clark discloses the method of transferring electronic signals representative of images on to an object film as claimed in 44 above. Therefore, it can be seen that the primary reference fails to disclose that the step of providing said light source comprises providing a laser beam and a beam expander. Steinebach discloses the use of a laser beam and beam expander for illuminating the image (column 2, lines 20-35). Steinebach teaches that the use of a laser beam and expander for illuminating the image is preferred in order to reduce color crosstalk within the image (column 2, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a laser beam and expander as suggested by Steinebach.

62. In regard to claim 72, this is an apparatus claim, corresponding to the method of claim 55. Therefore, claim 72 has been analyzed and rejected as previously discussed with respect claim 55.

Allowable Subject Matter

63. Claim 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

64. As for claims 14, the prior art does not teach or fairly suggest the use of a method of producing electronic signals representative of images on a source film using a light source to project the image through a lens array having an aperture to perform high spatial frequency cutoff and also performing the step of closing down said aperture until alias frequencies from the film grain are removed.

65. As for claims 15, the prior art does not teach or fairly suggest the use of a method of producing electronic signals representative of images on a source film using a light source to project the image through a lens array having an aperture to perform high spatial frequency cutoff and also performing the step of closing down said aperture until alias frequencies from the film grain are removed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US006222650B1: note the use of an imaging device that transfers an electronic image signal onto a photographic film.

US006091445A: note the use of an imaging device that transfers an image captured on film into an electronic image signal.

US005457491A note the use of an imaging device that transfers an electronic image signal onto a photographic film.

US005424802A note the use of an imaging device that transfers an electronic image signal onto a photographic film.

US004614415: note the use of an imaging device that has different shaped apertures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (571) 272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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CSY
May 12, 2005

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